## FOREST SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE ALLEGHENY FOREST EXPERIMENT STATION\*

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HOCKY MI. FOREST & RANGE EXPERIMENT STATION

Technical Note No. 14.

TREE FORM AND DEFECTS IN
YOUNG BEECH-BIRCH-MAPLE-HEMLOCK STANDS

7,154

During the establishment of 48 tenth-acre wooding plots on the Kane Experimental Forest in 1936, an average of 258 crop trees per acre were described as to form and defects. These records have been summarized to give an idea of the tree conditions to be encountered in stand improvement work in young growth in the beach-birch-maple-hemlock type. The records were obtained on twelve plots in an eighteen-year-old stand and twelve plots in each of three thirteen-year-old stands. Except for the height and crown width tables, the data given apply to selected crop trees and not to the ontire stands.

Table 1 - Proportion of crop trees in various form classifications by species (all plots)

				y	and the second s
	: Basis -	::	•	: Crook : I	erfect
Species	: Total No.	:: Forked	: Leaning	: Exceeding :	in
	: of troos	11	: 10° or more	:, 1/2 foot :	form.
		(Por	ont of Total-	No.)	ACCO & STOPE OF STATE OF STATE
Red maple	67	20	30	12.	43
Black cherry	587	26	26	9	51
Sugar maple	519	18	19	6	63
Homlock	24	16		8	77

A surprising proportion of the crop trees are forked or leaning. Crop trees of red maple and black chorry have the poorest form, although most of the red maple in this sample were located in a generally poor stand.

Table 2 - Relative heights of different species at 13 years.

Species	Average Height	(ft.)
Pin cherry Black cherry Rod maplo Sugar maple Booch	24.4 22.6 19.2 17.1 12.5	•

Those measurements were obtained on one plot where tree origins are characteristic of second growth. Most of the beech were suckers, most of the sugar maple seedling sprouts, and most of the other species were seedlings.

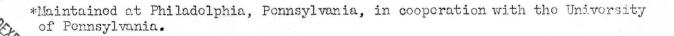


Table 3 - Relation of crown spread to diameter in young stands (13 and 18 years of age)

Diamoter class	:	Crown	diamotor (in f	foet) by speci	os
(inches)	:	Sugar Maplo	: Black	Cherry :	Red Maplo
1		4,9	5.	, 3	5.6
2		6.9	7.	. 2	8.3
3		9.0	9.	.0	10,9
4			10.	, 9	13.4
5			12.	. 8	
6			14.	.7	

Table 4 - Provalence of bole defects of crop trees, by species. (all plots)

			%	Defective, by type of Injury
:	Total:	: % :	Minor:	Mechanical: Rotted: Nectria: Rodent
Spocios :	No. of:	: Dofective:	Bark:	Bark : Stub at: Cankor : Scars
:	troes:	: :	Injury:	Injury : Base : :
Sugar maple	519	46	18	16 17 6 2
Red maple	67	40	13	12 18 4 0
Booch	18	39	22	11 6 0 6
Black chorry	587	13	9	2 2 1 0
Homlock	24	12	4	4 0 0 8
All species	1235	29	13	9 9 3 1

The species are arranged in the table in order of apparent susceptibility to bark injury, which depends largely upon relative bark thickness. The basis is weak for beech and homlock, but the very considerable difference in susceptibility between maples and black cherry is well founded. Only 13% of the black cherry trees are defective, as compared with 46% of the sugar maples. Rotted stubs of parent stumps are particularly common in the maples, but it is probable that the complete disappearance of the stubs will precede the formation of rot-susceptible heartwood in the younger crop trees of this species.

Nectria cankers are more frequent on the maples than on black cherry (table 4). Redent sears, attributed for the most part to percupines, are most common on hemlock and beech. Of the 587 black cherry crop trees, none was gnawed by redents. Forcupine injuries have been observed in considerable numbers on older black cherry trees in nearby localities, however.

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